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ABSTRACT

Two newsletters review the principles and application of two behavior modification techniques with mentally retarded persons: overcorrection and punishment. Overcorrection may be either restitutional, in which the client is made to restore the environment to a far better state than before the inappropriate behavior occurred, or positive practice overcorrection, in which the child overpractices correct forms of behavior incompatible with the behavior to be eliminated. Suggestions are given for developing and implementing an overcorrection procedure, as well as for assessing the treatment's effectiveness. Clinical examples of the approach used with such maladaptive behaviors as vomiting, food stealing, and self-injurious behavior are cited. Punishment is defined and two types of aversive stimuli (primary and conditioned) are described. Characteristics of punishment are noted, and the major types of punishment programs (response cost, time-out, and primary aversive techniques such as electric shock and ammonia inhalation) are considered. Following a brief examination of examples of using primary and conditioned aversive stimuli, ethical factors and possible non-therapeutic effects are addressed. (CL)

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PSYCHIATRIC ASPECTS OF MENTAL RETARDATION NEWSLETTER

JULY 1982

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BEHAVIOR MODIFICATION TECHNIQUES I. OVERCORRECTION

Overcorrection is an underutilized behavior modification technique for the elimination of maladaptive behavioral patterns. Rapid and longlasting results are often achieved for cases of "treatment resistant" behavior in psychiatric as well as mentally retarded individuals (5,7,10,11,12,13,14). The technique is considered to be mildly aversive. Foxx and Azrin (8) developed overcorrection to deal with behavioral problems when more "classical" behavior modification techniques proved to be ineffective. Experience has shown that in many clinical situations overcorrection is superior to time out, ignoring the behavior, fines and punishment.

Overcorrection is not a treatment of last resort. In many cases, it is the most appropriate intervention for modifying negative behaviors and should be considered the treatment of choice in some clinical situations. The technique is easily implemented in a classroom, residence, or family setting. Overcorrection is effective in eliminating behaviors considered within the individual's control, e.g. stealing, as well as those often considered to be involuntary and treatment resistant, e.g. stereotyped behaviors in autistic children.

Components of Overcorrection

There are two types of overcorrection. They may be employed alone or in conjunction with each other.

Restitutional overcorrection is designed to make the client restore the environment to a state far better than it was before the inappropriate behavior occurred. If a client threw a chair, for example, he would be required to not only put the chair back in its place, but to also clean and straighten the entire room. This overcorrection procedure is used to treat disruptive acts and is not generally employed to deal with such non-disruptive behaviors as stereotyped hand movements.

Positive practice overcorrection, the second type, requires that the client overpractice correct forms of behavior which are incompatible with the inappropriate behavior to be eliminated. For example, if a client was "finger-flicking" (a kind of stereotyped movement) he would be required to practice holding his fingers and hands in a series of stationary positions for a three minute period.

Developing an Overcorrection Procedure

The general rules governing the development of any behavior program must be followed (16,17). The behavior to be modified (the target behavior) must be defined in clear and concrete terms so that it can be easily observed by staff, e.g. biting might be defined as "any part of the client's face touching the body of another client." Once the behavior is defined, the frequency of the behavior must be determined by taking a baseline measurement.

The next step is to create an overcorrection procedure to eliminate the maladaptive behavior. Designing a procedure can be quite difficult and requires considerable imagination. Staff brainstorming sessions are useful at this stage. It also helps to review the overcorrection literature to find procedures that other clinicians, faced with similar clinical problems, have developed. Table I presents a variety of published overcorrection programs.

The choice of which type of overcorrection procedure to use, restitution or positive practice, is determined by the target behavior. Disruptive acts such as soiling or temper tantrums require a restitution procedure. When the goal is the development of a new and appropriate behavior, e.g. good eating habits, positive practice is employed. In some situations, a program combining both techniques will produce very rapid results.

How much the overcorrection procedure should resemble the target behavior is

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another important consideration. For positive practice, there should be a strong resemblence (3). This is not a significant issue in restitutional overcorrection because the aversive effect of the procedure is what produces the behavioral change.

Implementation

The procedure(s) which has been developed must be executed immediately after each occurrence of the inappropriate behavior. Initially, this will require that a staff member be with the client at all times to administer the overcorrection procedure every time that the behavior occurs. These initial demands on staff time tend to be short lived because overcorrection usually produces very rapid results. Once the target behavior disappears, treatment effects can be prolonged by utilizing a strong negative command, e.g. "no biting," at regular intervals. These commands are introduced during the initial treatment phase while the actual overcorrection procedure is being carried out.

Clients may be resistant to the program at first and they may have to be physically guided through the movements of the procedure. As the client learns the routine, the physical guidance should be reduced to a "shadowing" of the initial, directive guidance. The final phase is to limit client supervision to only verbal commands. When there is great resistance to the program and reactions such as temper tantrums occur, a time-out procedure can be utilized. As soon as the tantrum ends, the overcorrection procedure is immediately reintroduced. For other negative reactions to the program, a second procedure can be added. It is not unusual to employ one procedure to deal with a child not attending to classroom tasks while simultaneously employing a second procedure to suppress the stereotyped movements.

The goal of the overcorrection procedure (as in all behavioral modification programs) is for the behavioral change to be manifest in all areas of the individual's life and for he or she to be responsive to many different people. Once the program is effective in one setting, such as the school, it should be then carried out in other settings such as community residence, to ensure a permanent behavioral change.

Assessing Treatment Effectiveness

If the overcorrection procedure has not been effective in substantially reducing the target behavior, the components of the treatment program and the way it is being administered should be reviewed. Some clients, for example, enjoy the increased staff attention and the procedure may actually increase the frequency of the targeted behavior. Staff contact with the client should always be as neutral as possible.

Occasionally, someone will actually enjoy the procedure, and this response may cause the target behavior's frequency to increase. Thus, the incontinent client who was required to wash out his or her soiled clothing, might actually soil more if "water play" was a preferred activity. To avoid these types of programming errors, staff members who know the client very well must participate in the development of the program.

Another critical component is the length of time required to carry out the overcorrection procedure. It may be that the implementation time was too short for the procedure to be effective. For target behaviors that occur only once per day, e.g. fighting at a day program, the procedure should take at least thirty minutes for the client to carry out. On the other hand, behaviors that have a high rate of occurrence, generally require overcorrection procedures lasting minutes with a very high number of overcorrection trials being implemented per day.

Treatment Side Effects

In general, programs employing punishment techniques may cause marked distress, anxiety, and other negative behaviors that undermine the program. The initial reports on overcorrection suggested that it did not induce emotional outbursts, but later reports found that undesirable emotional behavior did develop in some cases. In one case report, head banging developed during an overcorrection program (15). Staff must always take into account the ethical guidelines governing aversive procedures (1) and carefully monitor treatment to ensure that the best interests of the client are served.

TABLE I. CLINICAL EXAMPLES OF THE USE OF OVERCORRECTION FROM THE BEHAVIORAL SCIENCE LITERATURE

Maladaptive Behavior	*Overcorrection Procedure Devised*
Vomiting	*Restitution* Child was shown vomitus and given verbal disapproval. Afterwards, for 20 minutes, the child was required to wash clothes with cold water, clean the floor (including the window sills and walls) with a cloth. He had to also take off soiled clothes and put on clean ones. If further vomiting occurred during the procedure, a verbal warning was given (4).
Food Stealing	*Restitution and Positive Practice* After episode of food stealing, client was required to return the food to the person to whom it belonged. Then the client had to practice giving her own snacks away to victim of the theft (2).
Poor Eating Habits	*Restitution and Positive Practice* While eating, staff told the client: "No, you don't spill your food (touch your food, etc.)" and then: "Clean up your mess." Client had to then vigorously wipe hands, face, table, chair, and floor with a wet cloth for two minutes and then apologize to all present for rude behavior. In addition, client had to hold fork and knife in correct fashion, cut up a small portion of food, put in onto the fork and bring it towards the mouth 10 times (3).
Failure to Attend Two Hour Self-Help Class	*Positive Practice* Each time the client failed to come to class, she was escorted to room and required to groom a profoundly retarded female client with hair combing, manicure and cosmetics for 30 minutes. She then was given another chance to attend class. If she refused, she had to groom another female client for 30 minutes. The procedure was repeated for up to four clients for a total of two hours (6).
Self-Injurious Behavior - Mouthing	*Restitution* Child was told "No," and teeth and gums were brushed with a toothbrush soaked in an oral antiseptic. Then the lips were also washed with the oral antiseptic. The entire procedure took two minutes (9).
Throwing Furniture	*Restitution* After each episode, client was required to return furniture to proper place, clean and straighten surrounding area, and apologize to staff and clients. The procedure took 30 minutes (8).

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[14]Roberts, P, Iwata, BA: An analysis of overcorrection movements. *Am. J. Mental Deficiency*, 83:588-594, 1979

[15]Rollings, JP, Baumeister, AA: The use of overcorrection procedures to eliminate the stereotyped behaviors of retarded individuals: an analysis of collateral behaviors and generalization of suppressive effects. *Behavior Modification*, 1:29-46, 1977

[16]Thomas, DR, Murphy, RJ: Practitioner competencies needed for implementing behavior management guidelines. *Behavior Therapist*, 4:7-10, 1981

[17]*Writing a Behavioral Program* available from Dr. D. R. Thomas, Brainerd State Hospital, Brainerd, MN 56401◆

USE OF APPROVED DRUGS FOR UNLABELED INDICATIONS

F.D.A. Drug Bulletin 12:4-5, 1982

This article summarizes the Food and Drug Administration's (FDA) role in regulating the practice of pharmacotherapy. When the FDA approves a drug for use in the United States, it allows the pharmaceutical companies to market and advertise a drug only for the treatment of those disorders for which there is evidence of its efficacy and safety. This does not limit the prescription of a drug for only those conditions. A physician can prescribe any marketed pharmaceutical agent for uses other than those listed in its package insert. (The Physician's Desk Reference contains the same information.) When a drug is prescribed for a disorder not mentioned in the package insert, it is called an "unlabeled indication". Thus, once a drug is marketed, the FDA regulates the advertising claims that can be made about the drug and not the disorders for which it can be prescribed.

Editors' Note: The use of a drug for an unapproved use may produce a significant therapeutic result in an otherwise treatment resistant condition. As with all drug therapy, the rights of the individual must be carefully protected. In addition, many states have regulations regarding what drugs can be prescribed for mentally retarded individuals living in state facilities so that the prescription of a drug for an "unlabeled indication" may be in violation of a specific department of mental health statute.◆

PSYCHIATRIC ASPECTS OF MENTAL RETARDATION NEWSLETTER

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BEHAVIOR MODIFICATION TECHNIQUES II. PUNISHMENT

Punishment, when used in the context of behavioral programming, refers to the use of an unpleasant (aversive) experience to decrease the rate at which an undesirable behavior occurs. Punishment techniques, often swiftly and effectively, suppress or eliminate maladaptive behaviors. In the mentally retarded, the major use of punishment is for the suppression of seriously maladaptive behaviors such as severe head banging.

Definition

Punishment is a sophisticated behavioral technique. It is not the punitive retribution associated by many professionals with the naughty child who is "punished" for doing something "bad". This association is an impediment to the correct and effective use of punishment techniques, which should be viewed as behavioral programming to improve the quality of a client's life by reducing or eliminating maladaptive behaviors.

Punishment techniques are used because they are extremely powerful suppressors of behaviors. Even those techniques whose use causes immediate revulsion in many people have a role in some situations. The use of electric shocks, for example, can be a life saving intervention in some cases of severe self-abuse.

Types of Aversive Stimuli Used With Punishment Techniques

Two types of aversive stimuli are used in punishment procedures. The first type is called *primary aversive stimuli* and represent experiences which are unpleasant to most people. The application of an electric shock and the inhalation of aromatic ammonia are two examples.

The second type of aversive stimuli is *conditioned aversive stimuli*. These experiences are by themselves not unpleasant. They become unpleasant because in the past they occurred at the same time (i.e., paired with) as a *primary aversive stimulus*. For example, a staff person saying "no" in a very loud voice might initially be paired with the application of an electric shock. If this is done, "no" will quickly become a conditioned aversive stimulus which can be used in a punishment program.

Punishment Program Characteristics

Effective punishment programs employ the following principles:

1) *The aversive stimulus must be sufficiently intense.*

In order for a punishment technique to be effective, the aversive stimulus must be of at least moderate intensity. Techniques which employ mild aversive stimuli tend not to suppress the targeted behavior.

2) *The maladaptive behavior must be punished every time.*

In order for a punishment program to be effective, the client must be punished every time the targeted behavior occurs, irrespective of the severity of that behavior.

3) *All positive reinforcement of the targeted behavior must be*

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discontinued.

When using punishment technique, it is critical to discontinue all positive reinforcement of the undesired behavior. If the undesired behavior is reinforced in any way, it is likely that the punishment program will be ineffective.

4) Punishment procedures are long-term programs.

When a punishment technique is discontinued, the maladaptive behavior may rebound, increasing in frequency to a higher level than before. Thus, punishment programs must somehow be continued almost indefinitely in order to be really effective. For example, the primary aversive stimulus might be shifted to a conditioned aversive stimulus, such as staff disapproval, which would continue indefinitely.

Types of Punishment Programs

Response-Cost Procedures

This technique is based upon the principle that when an individual performs an undesired behavior, he or she is punished by losing something of value. This might be the loss of dessert that evening or a trip to a museum. There are five rules to keep in mind when setting up response-cost procedures:

1) The client must be aware of the consequences of performing the undesired behavior.

Clients should not be surprised by the punishment. They should have a clear idea of the consequences that will occur if they carry out specific behaviors. Otherwise, the unexpected loss of a privilege may result in tantrums or other emotional outbursts.

2) Each time a response-cost technique is implemented, the client should be told when he will next have the opportunity to earn the reward.

In order to avoid undue distress to the client, staff should shift the focus of the client's attention as quickly as possible from the loss of privilege to the next opportunity to be rewarded.

3) The behavior to be suppressed must be under voluntary control.

A response-cost procedure may not work if the person lacks the ability to control the undesired behavior. Impulsive acts, for example, do not respond to response-cost techniques.

4) Response-cost procedures work best in an atmosphere where natural rewards are available for the development of desired behaviors.

Positive rewards for other acceptable behaviors facilitate the suppression of the undesired behavior, by encouraging the client to substitute one for the other.

5) The reward to be taken away must have meaning for the client.

For example, a response-cost procedure would be ineffective if a client were punished by not being allowed to see a movie which he did not like.

Time-Out

Time-out stands for "time-out from reinforcement". This is a response-cost procedure in which a client is placed in a restrictive environment for a short period of time.

The following guidelines should be followed:

1) The area or activity from which the person will be restricted must be very enjoyable.

2) The person must not enjoy the time-out spent in isolation by engaging in daydreaming, masturbation or other forms of self-stimulation.

3) Time-out should be implemented for very short periods of time - seconds or minutes.

4) When a time-out procedure is ineffective, the length of time spent in isolation should not be increased since doing so usually does not produce better results.

Time-out is considered to be an aversive/deprivation technique. In the past, it has been much abused and has become associated with the inappropriate use of seclusion in psychiatric hospitals. However, when properly used, time-out can be very effective.

Primary Aversive Techniques

Primary aversive techniques such as electric shock and ammonia inhalation should be designed and implemented only by highly trained professionals. In addition, such programs must be reviewed by a human rights or ethics committee.

Non-Therapeutic Effects of Punishment Programs

Punishment techniques produce a number of effects over and above the suppression

TABLE I. PUBLISHED EXAMPLES OF THE USE OF PUNISHMENT TECHNIQUES

Use of Primary Aversive Stimuli

Client	Maladaptive Behavior	Punishing Stimulus
20-y.o. autistic female (5)	face slapping	application of aromatic ammonia capsules
clients with profound MR (3)	severe mouthing, hand biting, head banging, and skin tearing	application of a fine water mist to the face
21-y.o. female with severe MR (4)	persistent vomiting	electric shock to increase stomach tension
female clients with profound MR (2)	teeth grinding (bruxism)	application of an ice cube ("icing") under the chin for 3 minutes

Use of Conditioned Aversive Stimuli

Client	Maladaptive Behavior	Punishing Stimulus
institutionalized clients with severe or profound MR (1)	different types of "messy eating"	time out: either for 15 seconds or for the entire meal
male client with mild MR (6) (also see *P.A.M. Newsletter*, April, 1982)	inappropriate sexual approaches to children in the community	response cost procedure: restriction to bedroom for 1 evening and the loss of a weekend visit

of the undesired behavior. These effects must be kept in mind whenever such a program is developed.

It is not uncommon, for example, for a behavior which is punished in one setting to increase in another one. This is called "behavioral contrast". Thus, if a child is punished for a particular action when he or she is at school, the frequency of that behavior may increase when the child is at home.

There is also a tendency for the undesired behavior, after being initially suppressed, to rebound at a later time even though the behavioral program is still in effect. In other words, the undesired action will not be permanently eliminated, although its daily frequency will often drop to a very low level.

In addition, it is not uncommon during a punishment program for a non-punished behavior to increase in frequency. If these non-punished behaviors are desirable, they can be reinforced, thereby encouraging their substitution for the previous maladaptive behaviors.

Ethical Considerations

A basic principle regarding the use of punishment as a behavioral technique is that it is a treatment of last resort, to be used only after programs which employ positive reinforcement have failed. (The resources presented at the end of this article discuss this issue in detail.)

Most response-cost techniques are implemented without considering their ethical aspects. However, the use of any primary aversive technique or time-out procedures should be reviewed by a human rights review committee. Most states have guidelines regarding the use of punishment programs and these guidelines should be consulted prior to the development of any such program.

Conclusion

Punishment is an aversive-conditioning technique which should be implemented only after careful consideration of its appropriateness in the specific clinical setting. The ethical issues raised by this technique should also be thoroughly considered. When appropriately used, punishment can suppress or eliminate maladaptive behaviors. In severe cases, its use may be life-saving.

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General Resources

Gardner WI: Use of punishment procedures with the severely retarded: a review. *Am J Ment Defic* 74:86-103, 1969

Sulzer-Azaroff B, Mayer GR: *Applying Behavior Analysis Procedures with Children and Youth*. New York: Holt, Rinehart & Winston, 1977

Ethical Resources

AAMD Position Paper: *Use of Physical, Psychological and Psychopharmacological Procedures to Affect Behaviors of Mentally Retarded Persons*. Write to the American Association of Mental Deficiency, 5101 Wisconsin Avenue, Washington, DC, 20016 for a copy of this paper.

Martin R: *Legal Challenges to Behavior Modification*. Champaign, IL: Research Press.

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